

**IN THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

1-26. (canceled)

27. (currently amended) A method for immunization, prophylaxis or treatment of a vertebrate at risk of or suffering from ~~a disease caused by a pathogenic micro-organism~~ Brucellosis comprising the steps of:

- a) extracting deoxyribonucleic acid from ~~the pathogenic micro-organism~~ Brucella;
  - b) identifying at least one gene encoding at least one homologous antigen from the deoxyribonucleic acid wherein said at least one homologous antigen ~~is capable of stimulating which induces~~ protective immunity against ~~the pathogenic micro-organism~~ Brucella;
  - c) inserting the at least one gene into a multicopy plasmid capable of replicating and expressing in ~~the pathogenic micro-organism~~ Brucella;
  - d) transforming an attenuated or avirulent strain of ~~the otherwise pathogenic micro-organism~~ Brucella with the plasmid to form a vaccine; and
  - e) administering an effective amount of said vaccine to the vertebrate,
- wherein ~~the pathogenic micro-organism is Brucella selected from the group consisting of is~~ B. abortus, B. melitensis, B. suis, B. ovis, B. neotomae and or B. canis.

28. (currently amended) The method of claim 27, wherein the attenuated or avirulent strain of *Brucella* ~~pathogenic micro-organism~~ is *B. abortus* strain RB51.

29. (previously presented) The method of claim 28, wherein the at least one gene is a Cu/Zn SOD gene.

30. (previously presented) The method of claim 28, wherein the at least one gene is one or both of a GroES gene and GroEL gene.

31-34 (canceled)

35. (currently amended) A method for immunization, prophylaxis or treatment of a vertebrate at risk of or suffering from ~~a disease caused by a pathogenic micro-organism~~ Brucellosis comprising the steps of:

- a) extracting deoxyribonucleic acid from ~~the pathogenic micro-organism~~ *Brucella*;
- b) identifying at least one gene encoding at least one homologous antigen from the deoxyribonucleic acid wherein said at least one homologous antigen ~~is capable of stimulating which induces~~ protective immunity against ~~the pathogenic micro-organism~~ *Brucella*;
- c) inserting the at least one gene into a multicopy plasmid capable of replicating and expressing in ~~the pathogenic micro-organism~~ *Brucella*;

d) transforming an attenuated or avirulent strain of ~~the otherwise pathogenic micro-organism~~ *Brucella* with the plasmid to form a vaccine; and

e) administering an effective amount of said vaccine to the vertebrate,  
wherein the attenuated or avirulent strain of *Brucella* ~~pathogenic micro-organism~~ is *B. abortus* strain RB51.

36. (previously presented) The method of claim 35, wherein the at least one gene is a Cu/Zn SOD gene.

37. (previously presented) The method of claim 35, wherein the at least one gene is one or both of a GroES or a GroEL gene.

38-43 (canceled)

44. (new) The method of Claim 27, wherein the attenuated or avirulent strain of *Brucella* further expresses one or more heterologous antigens.

45. (new) The method of Claim 27, wherein the vertebrate is a bovine.

46. (new) The method of Claim 35, wherein the *B. abortus* strain RB51 further expresses one or more heterologous antigens.

47. (new) The method of Claim 35, wherein the vertebrate is a bovine.